23. The water softening method of Claim 11, wherein said non-regenerating polisher contains a Na^+ type ion exchange resin.

REMARKS

Reconsideration of this application is requested. The specification has been amended to indicate that the first water softener is reference number 4, not reference number 11, in Figure 1. Support for this amendment is found at page 8, lines 13-15, of the specification. Claims 1, 8, and 15 have been amended to recite that the control device controls the flow of raw water and regeneration of each of said water softeners based on the difference between a previous measurement value and a current measurement value from the hardness detection device. Support for this amendment is found at page 4, line 8, to page 5, line 6, and page 15, line 3, to page 16, line 1. Claims 1-19 have also been amended for clarification and to correct grammatical errors. Claims 20-23 have been added. Support for claims 20-23 is found at page 7, line 8, of the specification. No new matter has been added by this amendment. Claims 1-23 are pending and at issue.

Claims 1, 2, 5-9 and 12-17 have been rejected under 35 U.S.C. § 103(a) as obvious over Schwartz (U.S. Patent No. 4,539,106) in view of Spiegl (U.S. Patent No. 4,332,678). Claims 3, 4, 10, 11, 18 and 19 have been rejected under 35 U.S.C.

§ 103(a) as obvious over Schwartz in view of Spiegl and further in view of Tanabe (U.S. Patent No. 5,811,012).

None of the cited references disclose or suggest controlling the flow of raw water and regeneration of water softeners based on the difference between a previous measurement value and a current measurement value from a hardness detection device as in the presently claimed invention.

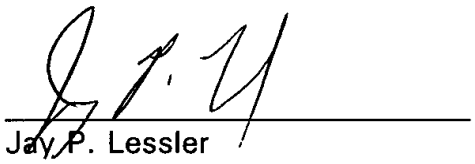
Applicants also note that none of the cited references disclose or suggest a non-regenerating polisher containing a Na^+ type ion exchange resin as recited in new claims 20-23.

For the foregoing reasons, the cited references alone or in combination fail to render obvious the presently claimed invention. Accordingly, applicants respectfully request withdrawal of this rejection.

In view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



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Marked-Up Version of
Specification and Claims
Accompanying Amendment in response to December 31, 2002 Office Action
U.S .Serial No. 09/908,993
(Docket No. 9614/0L414)

IN THE SPECIFICATION:

Paragraph starting at page 9, line 6:

While raw water is being passed through second water softener 11, salt water from salt water chamber 14 flows to first water softener [11] 4 to conduct regeneration of the ion exchange resin. When conducting this regeneration, valve 6 connects pipe 16 and pipe 5, and valve 2 connects pipe 3 and pipe 18. Pump 15 operates to flow salt water from inside salt water chamber 14 through first water softener 4. The ion exchange resin inside of first water softener 4 is regenerated. The waste salt water is discharged via pipe 3 and pipe 18.

IN THE CLAIMS:

1. (Amended) A water softening device, comprising:

at least a first water softener and a second water softener;

at least one regeneration chamber for conducting regeneration of each of said [first] water softeners [and said second water softener];

a hardness detection device for detecting the hardness of treated water from each of said water softeners;

a control device for controlling the flow of raw water to each of said [first] water softeners [and said second water softener] and for controlling regeneration of each of said water softeners;

[a hardness detection device for detecting hardness of treated water of said water softener; and]

said control device controlling the flow of raw water and regeneration of each of said [first] water softeners [and second water softener] based on [a hardness detection signal from said hardness detection device] the difference between a previous measurement value and a current measurement value from the hardness detection device.

2. (Amended) [A] The water softening device [as described in] of Claim 1, further comprising:

a sampling mechanism that samples treated water from inside a resin layer of each of said [first] water softeners [and said second water softener];

wherein said hardness detection device detects the hardness of treated water sampled by said sampling mechanism.

3. (Amended) [A] Th_ water softening device [as described in] of Claim 1, further comprising:

a non-regenerating polisher [is provided] downstream of said [first] water softeners [and said second water softener] with respect to the flow of raw water through said water softening device.

4. (Amended) [A] The water softening device [as described in] of Claim 2, further comprising:

a non-regenerating polisher [is provided] downstream of said [first] water softeners [and said second water softener] with respect to the flow of raw water through said water softening device.

5. (Amended) [A] The water softening device [as described in] of Claim 1, wherein:

said [first] water softeners [and said second water softener] are placed in a parallel arrangement with respect to the water flow.

6. (Amended) [A] The water softening device [as described in] of Claim 5, wherein:

wat r flows alternately through said first wat r softener and said second water softener; and

said control device performs regeneration of one of said first water softener and said second water softener when the other of said first water softener and said second water softener has water flow therethrough.

7. (Amended) [A] The water softening device [as described in] of Claim 1, wherein:

said at least one regeneration chamber is [one regeneration chamber] common to said first water softener and said second water softener.

8. (Amended) A water softening method, the method comprising:

providing at least a first water softener and a second water softener;

conducting regeneration of each of said [first] water softeners [and said second water softener] by using at least one regeneration chamber;

detecting hardness of treated water of said water softeners with a hardness detection device;

controlling the flow of raw water to each of said [first] water softeners [and said second water softener] by using a control device; and

controlling regeneration of each of said [first] water softeners [and said second water softener] by using said control device;

[detecting hardness of treated water of said water softener with a hardness detection device;]

said control device controlling the flow of raw water and the regeneration of each of said [first] water softeners [and said second water softener] based on [a hardness detection signal from said hardness detection device] the difference between a previous measurement value and a current measurement value from the hardness detection device.

9. (Amended) [A] The water softening method [as described in] of Claim 8, further comprising:

sampling treated water from inside a resin layer of each of said [first] water softeners [and said second water softener]; and

detecting the hardness of treated water sampled [by said sampling mechanism].

10. (Amended) [A] The water softening method [as described in] of Claim 8, further comprising:

treating water downstream of said [first] water soften rs [and said second water softener] with respect to the flow of raw water through said [first] water softeners [and said second water softener] with a non-regenerating polisher.

11. (Amended) [A] The water softening method [as described in] of Claim 9, further comprising:

treating water downstream of said [first] water softeners [and said second water softener] with respect to flow of raw water through said [first] water softeners [and said second water softener] with a non-regenerating polisher.

12. (Amended) [A] The water softening method [as described in] of Claim 8, wherein:

said [first] water softeners [and said second water softener] are placed in a parallel arrangement with respect to raw water flow.

13. (Amended) [A] The water softening method [as described in] of Claim 12, wherein:

water flows alternately through said [first] water softeners [and said second water softener]; and

said control device performs r generation of one [of said first] water softener [and said second water softener] when the other [of said first] water softener [and said second water softener] has water flow therethrough.

14. (Amended) [A] The water softening method [as described in] of Claim 8, wherein:

said at least one regeneration chamber is [one regeneration chamber] common to said first water softener and said second water softener.

15. (Amended) A water softening device, comprising:

at least a first water softener and a second water softener placed in a parallel arrangement with respect to raw water flow;

at least one regeneration chamber for conducting regeneration of each of said [first] water softeners [and said second water softener];

a hardness detection device for detecting hardness of treated water of said water softeners; and

a control device for controlling the flow of raw water to each of said [first] water softeners [and said second water softener] and for controlling regeneration of each of said water softeners;

[a hardness detection device for detecting hardness of treated water of said water softener;]

wherein water flows alternately through said water softener and said second water softener; [and]

wherein said control device performs regeneration of one [of said first] water softener [and said second water softener] when the other [of said first] water softener [and said second water softener] has water flow therethrough[,]; and

wherein said control device switches water flow from one water softener to the other when the difference between a previous measurement value and a current measurement value from the hardness detection device exceeds a predetermined value

[whereby the flow of raw water and the regeneration of each of said first water softener and said second water softener based on a hardness detection signal from said hardness detection device].

16. (Amended) [A] The water softening device [as described in] of Claim 15, wherein:

said at least one regeneration chamber is [one regeneration chamber] common to said first water softener and said second water softener.

17. (Amended) [A] The water softening device [as described in] of Claim 15, further comprising:

a sampling mechanism that samples treated water from inside a resin layer of each of said [first] water softeners [and said second water softener];

wherein said hardness detection device detects the hardness of treated water sampled by said sampling mechanism.

18. (Amended) [A] The water softening device [as described in] of Claim 15, further comprising:

a non-regenerating polisher [is provided] downstream of said [first] water softeners [and said second water softener] with respect to the flow of raw water through said water softening device.

19. (Amended) [A] The water softening device [as described in] of Claim 17, further comprising:

a non-regenerating polisher [is provided] downstream of said [first] water softeners [and said second water softener] with respect to the flow of raw water through said water softening device.